

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re: the Patent Application of	)	
Alan HAAKSMA, et al.	)	Before the Examiner
	)	Robert D. RINES
Application No. 09/925,571	)	
	)	Art Unit 3626
Application Filing Date: August 9, 2001	)	
	)	
<b>METHOD AND SYSTEM FOR CREATING</b>	)	Date: July 17, 2008
<b>A CONVENIENTLY ACCESSIBLE</b>	)	
<b>PORTABLE MEDICAL HISTORY</b>	)	

**DECLARATION OF ALAN HAAKSMA UNDER 37 CFR § 1.131**

I, Alan Haaksma, declare the following:

1. I am Alan Haaksma, a co-inventor of the subject matter described and claimed in the patent application identified above (the "Application").
2. I have personal knowledge of the facts set forth in this Declaration regarding the conception and diligent reduction to practice of the invention described and claimed in the Application.
3. My co-inventor, Dustin Ide, and I conceived the invention disclosed and claimed in the Application (at least that in claims 1-11 and 13-44) (the "Invention in the Claims") before February 6, 2001 (the "Reference Date") and engaged in diligent efforts to reduce it to practice from a date before the Reference Date continuously until it was actually or constructively reduced to practice.
4. Dustin Ide and I conceived of the conceived of the Invention in the Claims months before the Reference Date.

5. The Invention in the Claims provided the technological basis for a business plan that was developed in the ordinary course of business by a Canadian company known as The Statum Group (the "Business Plan"). I participated in development of that Business Plan.

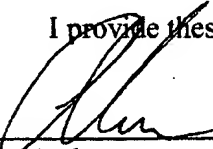
6. I personally conveyed a copy of the Business Plan to my patent attorney at least as early as May 2000.

7. The Business Plan included the section describing the underlying technology, which is attached as Annex A to this Declaration. Annex A reflects our possession of the Invention in the Claims in or before May 2000, which is before the Reference Date. The remainder of the Business Plan includes confidential business information proprietary to The Statum Group, but is available for non-public disclosure to the Office if necessary.

8. The Invention in the Claims is also reflected in Annex B, a proposed software specification that was derived from discussions between The Statum Group and Coolwater Inc., developers with whom we worked to implement the Invention in the Claims. The document in Annex B was created on or before December 22, 2000.

9. We implemented a working version of a system implementing the Invention in the Claims before the Reference Date. The document in Annex C is a notice that was given to a Dr. Peter R. Newman as part of the actual operation of the system and in the ordinary course of the business of The Statum Group. Annex C is dated January 30, 2001, which is before the Reference Date.

I provide these statements under penalty of perjury pursuant to 18 U.S.C. §1001.

  
\_\_\_\_\_  
Alan Haaksma

July 17, 2008  
\_\_\_\_\_  
Date

# Annex A

## **7. Operations and Technology**

### ***Background***

The LifeLineCD was originally envisioned as a secure Internet service allowing physicians to access a subscribing patient's medical record in an emergency situation. As we developed the product and researched the market, it became evident that a purely Internet model does not address all the issues surrounding a truly secure, portable and accessible medical record.

- ❑ The public's perception is that the Internet is not secure enough for the transmission and storage of medical records.
- ❑ The current infrastructure of the Internet and the low incidence of high-speed access make the rapid transfer of images difficult.
- ❑ Hospitals are more likely to have CD-ROM hardware than Internet access.
- ❑ Many physicians lag behind the technology curve and the CD solution is currently the simplest way to share this type of information.

Because of these issues our patent pending software was taken off line and placed on a credit card sized CD. The medical record is viewed in the computer's web browser using the same technology employed by the Internet today, but without the need to go online. The CD represents a more secure and portable format, eliminating the potentially long download times that would be unacceptable in an acute situation, and uneasiness with posting private medical information on the web. However, the operational model left some issues unresolved:

- ❑ The ability to capture the required information from the primary care giver and deliver the product to the patient in a timely and cost effective manner.
- ❑ The ability to maintain an updated record in near real time.
- ❑ The ability to capture data without any intervention by Statum, thus limiting our liability to virtually zero, should the data be erroneous.

### ***Current Development***

Clearly, a "best of both worlds" scenario is required. An online / offline or dynamic and static version of the software solves these issues. The information is collected dynamically or through the Internet while the compiled medical information is stored in the secure, portable and accessible format of a CD card, which is carried by the customer.

The LifeLineCD is produced using an Application Service Provider model, described hereunder.

### ***LifeLineCD ASP***

The Application Service Provider software strategy offers a three-fold advantage:

1. Provides unparalleled privacy and security, thus winning the confidence of patients, and maintaining the integrity of the patient-physician relationship.
2. Reduces costs in the record collection and updating process, and therefore the retail price;

and

3. Builds a barrier to entry by competitors, by seamlessly integrating Statum's business processes with those of the partner medical institution.

The future iterations of the software and process flow must address the above issues if the product is to be successful on a global scale. In order to optimize the *LifeLineCD* potential the LifeLineCD application software will be available over the Internet or secure dial-up service. There will be no need to download or install special software, as the application will work with the existing web browser using Extensible Markup Language (XML). Medical Records Institute has defined XML as the standard within the Electronic Patient Record Industry. As an option, subscribers to the LifeLineCD will also be able to have their records available through the internet as a back up should their CD be lost, or damaged.

### ***Security***

Because of the vulnerability of information passing through cyberspace and the sensitivity of medical information, security is of paramount importance.

- ❑ Permission level is assigned to specific user (Admin/Data Entry/Approve).
- ❑ The administrative staff will perform medical record entry tasks, and the supervising physician at each site will retain the sole authority to review created records and approve.
- ❑ Data is encrypted using the PKI (Private Key Infrastructure) 128-bit encryption process.

### ***Process***

- ❑ Facility contracts with Statum and is issued a Facility ID, password and private key, which make up their digital signature.
- ❑ Hardware issues are identified. The Statum ASP model requires the facility simply to have a computer with an Internet connection and a standard fax machine.
- ❑ Facility connects to ASP application and uses Administrative functionality to create User profiles and assign user permissions.
- ❑ User connects to ASP application and uses data entry functionality to create the patient record and collect payment. Payment includes an up-front "subscription" fee, along with a monthly maintenance fee, which includes unlimited updates.
- ❑ Pertinent information such as allergies, medications, and significant medical history as well as demographic information is keyed in through the application by the identified person.
- ❑ The paper record, which includes any ECGs, operative reports, Diagnostic image reports, consultant reports, are faxed into the Statum fax server where they are compiled, sorted and filed into the appropriate place in the record using proprietary technology.
- ❑ The Supervising physician reviews patient record and approves, or rejects.
- ❑ Patient record is merged with pertinent health informatics of specific interest to the patient.
- ❑ Approved records are queued for production at Statum.
- ❑ CDs are burned and mailed to the patient or clinic.
- ❑ Records are posted to the Internet. (Optional at the patient's discretion)
- ❑ The creation date of the record is noted by the application and an update reminder is sent out regularly to ensure that the patient and the participating clinic are up to date. This is one of the ways in which the product will strengthen the doctor - patient relationship.

- ❑ The entire process requires about 20 minutes to create the record.
- ❑ Statum and the Facility share revenues 50/50, ensuring the Facility's ongoing commitment to the LLCD program

### ***Addressing the issues***

By offering the LifeLineCD using the ASP model we have addressed the major issues surrounding the Electronic Patient Record for our application.

- ❑ The PKI 128-bit encryption process ensures that the data is not only secure during transmission; it remains encrypted in our database where only the patient or the physician who approved the record can have access. In addition, the digital signature created in the PKI process can verify the data's origin.
- ❑ Because the Internet is used merely as a method of data capture, and the LifeLineCD is a static, transportable digital document, the information is accessible immediately and not subject to potentially long download times.
- ❑ The LifeLineCD is accessible through any computer with a CD drive.
- ❑ The LifeLineCD is extremely easy to start and navigate. The record automatically appears onscreen and is thoughtfully organized for quick reference.
- ❑ Because the LifeLineCD is created where the traditional record resides, the process begins at the patient's request and when it is needed. The cost of transmitting the paper record through traditional means is significantly reduced, thus eliminating a major cost, and making the product available to a greater number of people.
- ❑ The ASP model allows the participating clinic to maintain an updated record and LifeLineCD in near real time. When a change in the patient's health situation warrants an updated LifeLineCD the clinic staff makes the change immediately and a new card is sent out within 24 hours.
- ❑ Finally, our ASP model is designed so that no intervention is required by Statum to process the patient's LifeLineCD. This limits our liability to that of product failure rather than incomplete or erroneous data input.

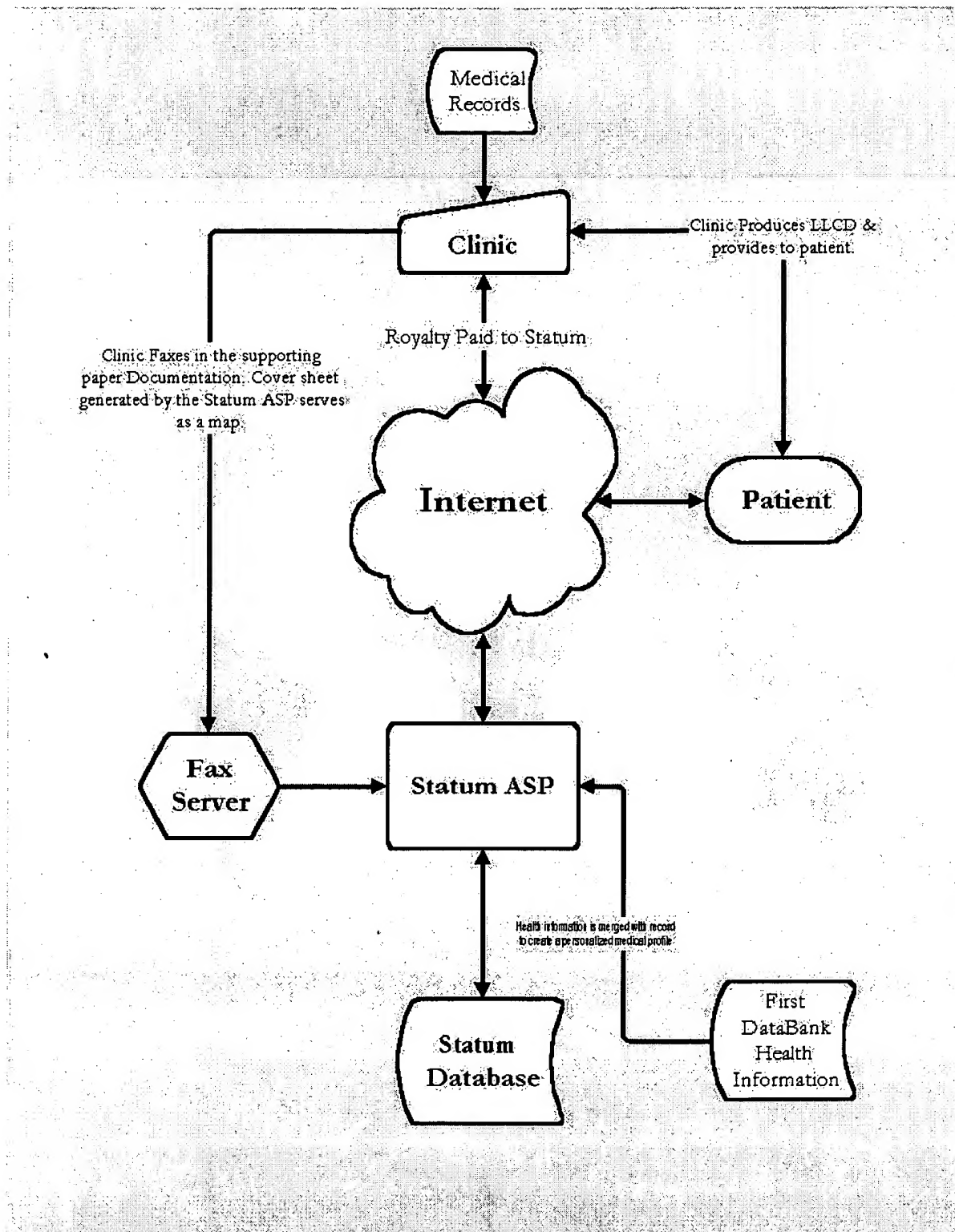
### ***Value Added Services***

Once the record is completed at the clinic, our application merges the information contained in it with specific information, supplied by a respected and credible source such as First Data Bank, related to the patient's health and wellness. As well, the customer is provided with:

- ❑ Links to provide additional products and services such as prescription refills and home care products to the preferred vendor within the clinic's area.
- ❑ Searchable database of worldwide medical clinics.

If requested, the patient's medical records will be made available through a secure Internet site. This will begin as an optional feature, but once Internet security and Patient confidence grows, it will eventually become the backbone of the LifeLineCD program.

## ASP Model Process Flow Diagram



### ***Customer and Tech Support***

Statum will operate a 24-hour service as well as an Internet support service to handle any customer or health care facility issues. This support will be handled transparently in situations where LifeLineCD is co-branded or private labeled, and the same service will provide LifeLineCD branded support.

### ***Partner Support***

A dedicated team/individual is tasked with providing full support for each channel partner. The emphasis is on providing solutions to their needs on a preemptive or rapid response basis. High service standards are a key element of the way Statum manages its relationships with channel partners.

### ***Marketing***

Marketing is one of the functions offered by TechMark Partners, our strategic ally. The current group has extensive experience in all areas of direct response marketing and consumer communications, and works with channel partners to guide them on marketing programs they may wish to run themselves.



# Annex B

## **Proposed Specification: *LifeLine ASP***

prepared by Michael Mansell, Coolwater Inc.  
prepared for The Statum Group

December 22, 2000

*doctor +  
patient  
separately  
making records?*

### **abstract**

Statum's **LifeLine** is a service for the collection and distribution of medical file data.

**LifeLineCD** is an offline operation that involves the manual collection and distribution of this data.

This specification defines the **LifeLineASP** (Application Service Provider), a secure Internet service for online medical records, featuring automated data capture, data acquisition/input, data output/reporting, and data/session security.

## status of this document

*This section describes the status of this document at the time of its publication. Other documents may supersede this document.*

This document is a confidential working draft by Coolwater Inc. for The Statum Group. It is inappropriate to use working drafts as reference material or to cite them other than as "work in progress". Distribution of this document is limited to parties participating in the Non-Disclosure Agreement.

## table of contents

<b>ABSTRACT.....</b>	<b>1</b>
<b>STATUS OF THIS DOCUMENT .....</b>	<b>2</b>
<b>TABLE OF CONTENTS .....</b>	<b>2</b>
<b>INTRODUCTION.....</b>	<b>4</b>
PURPOSE .....	4
TERMINOLOGY.....	4
<b>OVERALL OPERATION.....</b>	<b>5</b>
STATUM .....	5
STATUM .....	5
DOCTORS .....	6
PATIENTS .....	6
<b>DATA LAYERS .....</b>	<b>8</b>
DATA DEFINITIONS .....	8
<i>Patient Data Modules .....</i>	<i>8</i>
<i>Doctor Data Modules .....</i>	<i>10</i>
<i>System Data Modules.....</i>	<i>10</i>
DATA INPUT (ACQUISITION) .....	11
DATA STORAGE.....	11
DATA TRANSMISSION (MEDIUMS).....	11
DATA OUTPUT (FORMATS).....	12
DATA ACCESS (METHODS).....	12
DATA SECURITY.....	13
<i>doctor security .....</i>	<i>13</i>
<i>patient security.....</i>	<i>13</i>
<i>LifeLine system staff security.....</i>	<i>13</i>
<i>customer service staff.....</i>	<i>14</i>
<i>PKI security and data encryption Implementation .....</i>	<i>14</i>
<b>LOGICAL SERVERS .....</b>	<b>15</b>
<b>DATA FLOW.....</b>	<b>16</b>

**APPENDIX A : EXISTING INPUT FORMS ..... 17**

**APPENDIX B : EXISTING OUTPUT REPORTS ..... 23**

## introduction

### purpose

Statum's **LifeLine** is a service for the collection and distribution of medical file data.

**LifeLineCD** is an offline operation that involves the manual collection and distribution of this data. Manual data acquisition costs are extremely high because a third party is required to collect data from the doctor's office for delivery to Statum. It also introduces a middleman that could create errors in medical data. Data delivery by CD-ROM, while very effective, also entails production and distribution costs, as well as placing limits on the timeliness and completeness of medical data. Moving operations to an Internet based data collection and delivery mechanism reduces much of the current operations costs. It will also improve the timeliness, accuracy, and completeness of the medical data, as well as providing the opportunity for on-line medical information services.

This specification defines the **LifeLineASP** (Application Service Provider); a secure Internet service for online medical records, featuring automated data capture, data acquisition/input, data output/reporting, and data/session security.

### terminology

This specification uses a number of terms to refer to the roles played by participants in, and objects of, the LifeLineASP service.

#### **ASP (Application Service Provider)**

An application service provider is a company that creates a subscription based software service. For a periodic fee the ASP provides software and other computer based services to users over the Internet or other network mechanism.

#### **client**

An application program that establishes connections for the purpose of sending requests.

#### **server**

An application program that accepts connections in order to service requests by sending back responses.

#### **subscriber**

a person who has subscribed to the LifeLine service. can be a patient or doctor.

#### **patient**

owner & maintainer of personal medical data files. controls access to personal medical data.

#### **doctor**

creator & authorizer of patient medical data files.

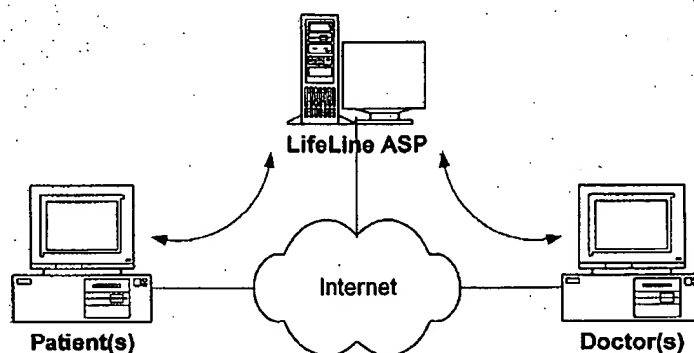
## overall operation

The LifeLineASP service features automated data capture, data acquisition/input, data output/reporting, and data/session security. There are 2 types of subscribers: patients and doctors. The LifeLineASP acts as a secure on-line repository of medical data files, accessible by both patient and doctor(s) for reference and maintenance.

really?  
-no patient interaction

Basically, doctors input and authorize patient medical data on the LifeLine server, and patients access this data over the Internet, or request CD-ROMs from the LifeLine server. The LifeLineASP, in effect, brokers transfer of medical data between patients and their doctors.

↳ no



The following chart shows the primary functions of Statum, patients, and doctors within the LifeLine system

### STATUM

- sign-up others (invite)
- customer support
- collect data
- verify data
- create CD-ROMs (3<sup>rd</sup> party)
- value add: education
- billing

### DOCTORS

- sign-up self (subscribe)
- sign-up others (invite)
- input data
- authorize data
- access data
- pay & get paid

### PATIENTS

- sign-up self (subscribe)
- sign-up others (invite)
- input data
- access data
- share data (controlled)
- pay

## statum

**sign-up others:** Statum customer service representatives (CSRs) sign up patients and doctors by inputting their personal information via the CSR web interface.

**customer support:** Statum CSRs support patients and doctors via the CSR web interface.

**collect data:** Statum collects data via the internet and fax. Textual data is collected over the internet where possible, and medical files from doctors are collected via fax. The automated capture module deciphers and routes faxes based on a cover page.

Personal photos can be submitted for scanning by patients. Import filters for electronic data from doctor's practice management systems are created on an as needed basis.

**verify data:** Statum quality control operators (QCOs) review, verify, and/or route incoming data from the automated capture modules where necessary.

**create CD-ROMs:** Statum, via a 3<sup>rd</sup> party manufacturer, creates and distributes LifeLineCDs containing patient medical data. Requests for CD-ROMs are batch processed at the end of each day and the archived and encrypted medical data is transmitted to the manufacturer via secure ftp or other such secure mechanism.

? no

**value adds:** Statum adds value to patient medical records in the form of education material customized for each patients needs. This material comes from sources such as FirstData.

**billing:** Statum offers patients and doctors the ability to pay subscription fees by credit card and pre-authorized debit. Initial subscriptions via the Statum website require a valid credit card.

\$5/disk  
now?  
YES

## doctors

**sign-up self:** doctors who wish to participate in LifeLine can subscribe themselves to the service on-line.

**sign-up others:** doctors can invite other doctors or patients to subscribe to LifeLine by sending them an automated e-mail invitation (similar to ICQ, an online message exchange service) that explains the features and benefits of the LifeLine service.

Is this  
a  
feature?  
YES

**input data:** doctors (or staff) input data into the LineLine system via secure web interface (text or image upload) or fax.

**authorize data:** doctors authorize release of medical records and authorize data in the LineLine system once the data has been inputted.

**access data:** doctors access patient(s) data via secure web interface, dial-up, wap, or fax-back.

**pay/get paid:** doctors pay their subscription fees by credit card or pre-authorized debit. They are paid by Statum for subscribing patients and inputting medical records.

## patients

**sign-up self:** patients who wish to participate in LifeLine can subscribe themselves to the service on-line.

**sign-up others:** patients can invite doctors or other patients to subscribe to LifeLine by sending them an automated e-mail invitation (similar to ICQ, an online message exchange service) that explains the features and benefits of the LifeLine service.

**input data:** patients input limited data (personal info) into the LineLine system via secure web interface (text).

**access data:** patients access their data via LifeLineCD, secure web interface, dial-up, wap, or fax-back.

**share data:** patients can 'share' their medical records with other doctors for referrals or for a newly designated doctor.

**pay:** patients pay their subscription fees by credit card or pre-authorized debit.



## Data Layers

### data definitions

The following chart outlines the data that is tracked by the LifeLine medical record database. The data modules give doctors and patients the ability to create and maintain their data. The following is a listing of the data modules. Each module requires security restrictions based on who and what information is being accessed in accordance with the security module described in latter sections of this specification. Each module includes, where relevant, preformatted drop down selection menus, data format verification and validation, database updated confirmation etc. Each module includes search methods for gaining fast access to files that need to be modified.

Data Module	Responsible (Patient/Doctor)	Add	Modify	View	Archive	Logged
personal information	P	√	√	√	N	Y
contact information	P	√	√	√	N	Y
physician	P	√	√	√	Y	Y
emergency contact	P	√	√	√	N	Y
medical insurance	P	√	√	√	N	Y
family history	P	√	√	√	N	Y
alternative med	P	√	√	√	N	Y
allergies	D	√	√	√	N	Y
diagnosis	D	√	√	√	N	Y
images	D	√	√	√	N	Y
immunization	D	√	√	√	Y	Y
implant devices	D	√	√	√	N	Y
Rx	D	√	√	√	N	Y
system	N/A	N/A	N/A	√	Y	Y

### Patient Data Modules

#### personal information:

- Photograph
- Name (Given, Middle, Surname, Maidenname)
- Salutation
- Occupation
- Employer
- SIN/SSN
- Religion
- Citizenship
- Marital Status
- Spouse Name
- DOB
- Gender
- Height

- Weight
- Smoker?
- Blood Type
- Organ Donor?
- Donor Notes
- Comments
- Address (home, business, etc.)
- Phone (home, business, cellular, etc.)
- E-mail (home, business, etc.)
- Comments

**physician:**

- Physician
- Primary? (full-access)
- Secondary? (read-only)
- Start, End Date
- Comments

**emergency contact information:**

- Name (Given, Middle, Surname)
- Salutation
- Address (home, business, etc.)
- Phone (home, business, cellular, etc.)
- E-mail (home, business, etc.)
- Comments

**medical insurance:**

- Medical Policy#
- Medical Insurer
- Address (home, business, etc.)
- Phone (home, business, cellular, etc.)
- E-mail (home, business, etc.)
- Notes

**family history:**

- Medical Condition
- Comments

**alternative medication:**

- Alternative Medication
- DIN (if any)
- Dosage (amount, units)
- Frequency (number, type)
- Start Date
- Active?
- Comments

## **Doctor Data Modules**

### **allergies:**

- Allergy
- Comments

### **diagnoses:**

- Medical Condition
- Active?
- Comments

### **images:**

- Physician
- Type
- Date
- Comments

### **immunization:**

- Vaccination
- Date
- Comments

### **implant devices:**

- Device
- Location
- Date
- Manufacturer
- Model
- Serial
- Lot
- Comments

### **prescriptions:**

- Drug
- DIN
- Dosage (amount, units)
- Frequency (number, type)
- Start Date
- Comments
- Active?

## **System Data Modules**

### **login data:**

- Datetime
- UserID
- (un)Successful Login
- Computer ID (IP address)

**access data:**

- Datetime
- UserID
- Table
- Action Performed

**data input (acquisition)**

A secure method is required to initially load (and modify) patient records into the master database(s). Data input from a doctor's office can occur in a few ways:

- direct data entry & image upload
- fax transmission

Although direct data entry imposes additional work on the doctor and office staff, it is ideal for data that is primarily text (e.g. doctor or patient info, etc.), and for making minor changes and corrections. Patients enter their own personal data in the database, and having as much information as possible available via drop-down menus reduces workload on the doctor. See **Appendix A** for descriptions and definitions of the existing LifeLineCD input forms.

Scanning provides the best quality images, but requires scanning hardware in the doctor's office. An Internet connection is also required for upload of the images. This process would entail staff training and extended quality control systems. Wherever possible, images can be transmitted by fax (most doctors and staff know the operation of a fax machine).

Using a specially generated cover page, doctor's can fax patient records to Statum, automating the data acquisition stage. Based on the cover page, the subsequent pages are separated into data or images files and filed with the appropriate patient record. This method is ideal for the initial load of patient records, and for subsequent bulk record updates.

Integration with the doctor's internal practice management system will be looked at in the future since a majority of doctor's offices are not yet paperless.

**data storage**

Patient records are stored in a master database(s) on the LifeLine ASP server(s).

Although output methods may manipulate or re-format the records, the data ultimately comes from this source.

**data transmission (mediums)**

Patient records are transmitted from one location to another over a number of different mediums. Encryption is used to ensure confidentiality and integrity of the data.

Passwords and biometric keys create secure access to the data. Transmission mediums include:

1. LifeLineCD - although the record is *stored* on the CD-ROM, it is really just another method of transmitting the data to another location.
2. Internet - a secure connection is essential for transmitting over the Internet.
3. Phone line - phone lines are used for modem connections to the Internet (secured via VPN) and IVR / fax-back functionality.
4. Wireless - the wireless medium can be anything from phones to pagers to browsers, extending the reach of phone lines and the Internet to almost anywhere in the world.

### **data output (formats)**

The primary output of the LifeLine ASP is the patient record.

The patient record output is generated using the Hyper-Text Markup Language (HTML). HTML encoded pages can be stored statically or dynamically, on CD-ROMs and Websites respectively. HTML is a detailed specification that allows cross-platform access to data.

Other markup languages to be investigated include the Portable Document Format (PDF), suitable for cross-platform viewing, Wireless Markup Language (WML), suitable for wireless access, and the EXtensible Markup Language (XML), suitable for data interchange.

The patient record output is organized into reports showing either the entire patient record or partial reports showing smaller sections of the record such as emergency contacts, or allergies. Reports are fully navigable using the hyperlink properties of HTML. See **Appendix B** for descriptions and definitions of existing LifeLineCD output reports.

### **data access (methods)**

Methods of data storage and data output generally determine the methods of accessing or interfacing with the data. Other than plain text, HTML output is considered one of the most accessible output formats.

The primary method of accessing patient records is using a Web Browser. A web browser can be software on a desktop computer (e.g. Netscape Navigator) or a web-enabled wireless device (e.g. RIM Blackberry). Alternate methods of access include technologies such as IVR and fax-back.

A data access matrix below shows some of the access methods and their respective output and transmission methods:

data transmission	data format	data access
CD-ROM	HTML	Web Browser
Internet (LAN)	HTML	Web Browser
Internet (LAN)	PDF	Web Browser
Internet (LAN)	text	Web Browser
Internet (Wireless)	HTML	Wireless Browser
Internet (Wireless)	WML	Wireless Browser
Internet (modem)	HTML	Web Browser
Phone-line (modem)	text	Terminal
Phone-line (fax)	HTML	Fax / Fax Server
Phone-line (fax)	PDF	Fax / Fax Server
Phone-line (fax)	text	Fax / Fax Server

#### Examples of transmission, format, and access method pairings

### data security

Data security controls every user's session access to LifeLine patient data and control functionality based on who they are and what they are able to do and see. There are four levels of user security control. These levels include the doctor, the patient, LifeLine system staff and LifeLine customer service staff.

#### doctor security

Security at the doctor's level limits the doctor's ability to view records based on the patients that he or she is responsible for and patient clinical data. Furthermore logs are maintained on all database activities so that all changes can be tracked. No data is deleted - rather it can be removed from the active patient file and archived. This helps to address liability issues associated with the medical record service.

#### patient security

Security at the patient level limits the patient's ability to view only his or her own records. The patient cannot modify data placed into the patient's file by the doctor. However sections of the patient's personal file such as addresses, telephone contact numbers, and insurance information are modifiable by the patient. Logs are maintained on patient files activities similar to the doctor security.

#### LifeLine system staff security

Lifeline System Staff can access a patient record only if the patient consents and gives their password (staff are bonded employees and subject to confidentiality covenants in their employment agreements). System Staff are able to act in the capacity of either the doctor or patient in order to maintain or correct patient file information. As with the security features of Doctor and Patient, all changes are tracked and logged for security and liability purposes.

## logical servers

The LifeLine ASP system consists of a number of logical servers or components, running on the Microsoft Windows 2000 operating system.

### Web Server

- Microsoft Internet Information Server (IIS) — MS web server — off the shelf
- ODBC *Object Data Base Controller? — software*
- ASP + VBSCRIPT (plus javascript where required)

*method of programming is basic how its being written*

### Database Server

- Microsoft Access and/or SQL Server
- ODBC

### Fax Server

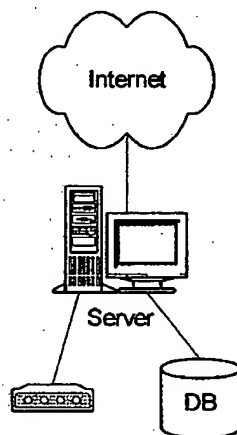
- AVT RightFAX + Cardiff TELEform
- C/C++ customization

### Security Server

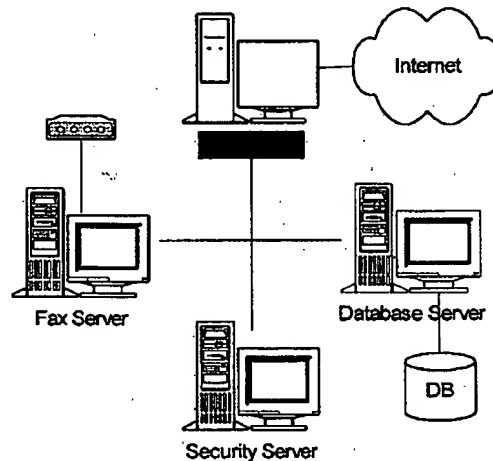
- (TBD) CA, RA, CRL, LDAP etc. ?

*→ Revocation Authority*  
*→ Certificate Authority*  
*Carticom*

Note that multiple logical servers can be located on one or more physical servers. Single and multiple server configurations are shown below.



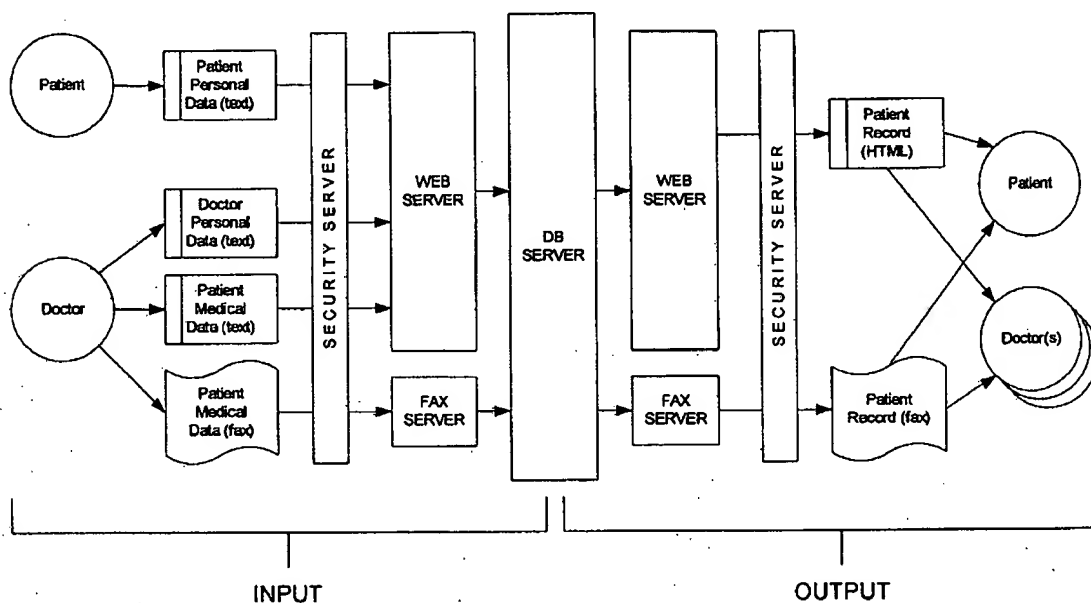
**Single Server**



**Multiple Servers**

## Data Flow

Data flow between entities and logical servers is depicted below.



Patients and Doctors are the source of Patient Records. These records are ultimately stored in a central database. The records are then accessible by the Patient and (selected) Doctors.



## Appendix A : Existing Input Forms

*being re-written  
in visual basic*

### Patient Record : Name

The screenshot shows the 'Edit Patient Record' form in the LifelineCD application, with the 'Name' tab selected. The form is divided into several sections:

- Name Section:** Includes fields for Last Name, First Name, and Salutation. A large text area is provided for Comments.
- Address Section:** Includes fields for Type, Address, Street, City, Province, Postal Code, and Country (set to Canada).
- Phone Section:** Includes fields for Type, CC, Area, and Number.
- LLCD Patient?** A radio button group with options 'Yes' and 'No'.
- Patient ID:** A text field containing 'MURKIN000000'.
- Email Section:** Includes a dropdown for Type and a text field for Email Address.

At the bottom of each section, there are record navigation controls showing 'Record: 1 of 1'.

### Patient Record : Allergies

The screenshot shows the 'Edit Patient Record' form in the LifelineCD application, with the 'Allergies' tab selected. The form displays a table with two columns: 'Allergy' and 'Comments'.

Allergy	Comments

At the bottom, there are record navigation controls showing 'Record: 1 of 1'.

## Patient Record : Alternative Medications

LifeLineCD

File Edit Insert Records Window Help

LifeLineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family List Images Immunization Imp Dev Physician Rx

Alternative Medication	Dosage		Frequency		Start Date	Comments	Active
	Amount	Units	#	Type			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

## Patient Record : Background

LifeLineCD

File Edit Insert Records Window Help

LifeLineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family List Images Immunization Imp Dev Physician Rx

<b>Personal Information</b> Occupation: <input type="text"/> Employer: <input type="text"/> DIVISION: <input type="text"/> Religion: <input type="text"/> Citizenship: <input type="text"/> Marital Status: <input type="text"/>		<b>Statistics</b> Date of Birth: <input type="text"/> Gender: <input type="text"/> Height: <input type="text"/> ft Weight: <input type="text"/> lbs Smoker? <input type="checkbox"/> Blood Type: <input type="text"/>	
<b>Medical Insurance</b> Insurer: <input type="text"/> Policy#: <input type="text"/>		<b>Organ Donorship</b> Organ Donor? <input type="checkbox"/> Notes: <input type="text"/>	
Photograph File: <input type="text"/> Scan Photo			
Comments: <input type="text"/>			

## Patient Record : Diagnoses

lifelineCD

File Edit Insert Records Window Help

lifelineCD

Edit Patient Record

Names Allergies Alt Med Background Diagnosis **Emergency Contact** Family Hist Images Immunization Imp Dev Physician Rx

Medical Condition	Comments	Active?
		<input type="checkbox"/>

## Patient Record : Emergency Contact

lifelineCD

File Edit Insert Records Window Help

lifelineCD

Edit Patient Record

Names Allergies Alt Med Background Diagnosis Emergency Contact **Family Hist** Images Immunization Imp Dev Physician Rx

Name		Address	
Unit Name:		Type:	
First Name:		Address:	
Suffix:		Street:	
Relationship:		City:	
Comments:		Province:	Postal Code:
UCC Patient?	<input type="radio"/> Yes <input type="radio"/> No	Country:	Canada
ID:		Record: 1 of 1	

Email		Phone	
Type:	Email Address:	Type:	CC Area Number
Record: 1 of 1		Record: 1 of 1	

## Patient Record : Family History

**LifelineCD**

File Edit Insert Records Window Help

LifelineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Imp Dev Physician Rx

Medical Condition	Comments
<input type="text"/>	<input type="text"/>

## Patient Record : Images

**LifelineCD**

File Edit Insert Records Window Help

LifelineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Imp Dev Physician Rx

Image Information

Physician:

Type:

Date:

Image File:

File ID#:  (AutoNumber)

Comments:

Scan Image

## Patient Record : Immunization

**LifelineCD**

File Edit Insert Records Window Help

LifelineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Imp Dev Physician Rx

Vaccination	Date Vaccinated	Comments
<input type="text"/>	<input type="text"/>	<input type="text"/>



### Patient Record : Implant Devices

LifeLineCD

File Edit Insert Records Window Help

LifeLineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Impl Dev Physician RX

Device:  Comments:

Manufacturer:

Model:

Serial#:

Lot #:

### Patient Record : Physician

LifeLineCD

File Edit Insert Records Window Help

LifeLineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Impl Dev Physician RX

Physician	Start	End	Comments	Primary
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Patient Record : Prescriptions

LifeLineCD

File Edit Insert Records Window Help

LifeLineCD

Edit Patient Record

Name Allergies Alt Med Background Diagnosis Emergency Contact Family Hist Images Immunization Impl Dev Physician RX

Drug	Dosage	Frequency	Start Date	Comments	Active
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Doctor Profile

**LifelineCD**

File Edit Insert Records Window Help

**Edit/Add Physician Data**

Dr.  Aaron  Lorne E.  Specialty:  Urology (FRCSC)

Title Last Name First Name/MI

Address:  Ctr Hosp Anna-Laberge  Phone:  1  450  1111111

200 Boul Brisebois  Fax:

Chateauguay  QC  J6K 4W8  CC  Area  Ph#

City Prov Postal Code Email:

Canada  Notes:

Country

Save  Cancel

## Insurer Profile

**LifelineCD**

File Edit Insert Records Window Help

**Edit/Add Insurer Profile**

Name:  Ontario Hospital Insurance Plan (OHIP)

Address:  2195 Yonge Street  Phone:  1  416  3145518

CC  Area  Ph#

Toronto  ON  M5W 1G9  Notes:

City Prov Postal Code

Canada

Country

Save  Cancel

Record:  1  of 8

# Annex C

Dr. Peter R. Newman  
301-3292 Bayview Ave  
North York, ON M2M 4J5



Dear Dr. Newman :

Please find attached a summary of medical information that has been submitted to our company on behalf of your patient, Mrs. Veena Sarin. This information will be used as part of an electronic medical record that the patient will carry. Please take a moment to review the information following, and report any discrepancies to our office as soon as possible.

If you have any questions or concerns, please feel free to contact us at (877) 782-8868.

### Active Diagnosis

Medical Condition	Comments
Essential Hypertension	Onset 1965
Hypercholesterolemia	Onset 1986
Osteoporosis	onset 1986 - Dorsal Kyphosis present
Multinodular Goiter	Hashimoto's Thyroiditis
Hearing Loss	Sensorineural on left & conductive bilaterally. Chronic Perforations both tympanic membranes.

### Active Prescriptions

Drug	Dosage	Frequency	Start Date	Comments
Didrocal	1 Tablet	Daily	97/11/01.	
ASA-EC	325 mg	Daily		
Hydrochlorothiazide	25 mg	Daily	91/01/01	
Altace	10 mg	Daily	00/01/01	Ramipril - Replacing enalapril which was started in 1991.
Conjugated Estrogen Sulfate	0.625 mg	Daily	96/08/01	

### Allergies

Allergy	Comments
None	Intolerance to Sulindac

### Family History

Medical Condition	Comments
Diabetes	

### Immunization History

Vaccination	Date	Comments
Pneumovax 23	98/10/01	
Td P	98/09/01	Primary Series 1986. Boosters Nov. 1987 & Sept. 1998
Influenza		Annually

### Past Diagnosis

Medical Condition	Comments
Appendicitis	Appendectomy
Tonsillitis	Tonsillectomy
Pneumonia	in infancy
Abdominal Hystorectomy	1972
Fracture	Right 5th Metacarpal



**Patient Profile**

Date of Birth	Smoker?	Height (in)	Weight (lbs)
---------------	---------	-------------	--------------

1921/01/19	<input type="checkbox"/> No	64	129
------------	--------------------------------	----	-----

Please sign below to indicate that, to the best of your knowledge, the above information is accurate and fax to (905) 842-8201.

Dr. Peter R. Newman

*P. Newman*

JAN 30 2001  
Date

See corrections previous page